Amornrat Khongma 2013: Object Surface Area Approximation Using Low-Cost 3D Depth Sensor. Master of Engineering (Information and Communication Technology for Embedded Systems), Major Field: Information and Communication Technology for Embedded Systems, Department of Electrical Engineering. Thesis Advisor: Mr. Miti Ruchanurucks, Ph.D. 69 pages.

Currently, the technology of burn therapy is indispensible. "For patients with burns over 50% of the total body surface area, death rate is higher than 52%". This statistic of burn patients is from Nopparat Rajathanee Hospital in Thailand (2012). Burn Care in Nopparat Rajathanee Hospital and Computer-Vision Laboratory in Kasetsart University aim to apply depth sensor and computer vision theory for detecting and estimating of burn area ratio. We hope ti will be more accurate than a present system that requires human estimation. We will generate the burn surface area using a low-cost 3D depth sensor device called Microsoft Kinect. As it is inexpensive, the resolution is lower than that of dedicated devices, such as 3D laser scanner. Here we need to understand basic of depth sensing and 3D triangular mesh reconstruction. The characteristic of Microsoft Kinecct is explained. In this thesis, we will be addressing the accuracy issue and propose a method to improve it. The improvement is done by spatial filtering. Finally, an experiment is done to compare accuracy of area size between using and not using our filter.

_____ _____ __ / __ / __

Student's signature Thesis Advisor's signature